What is Claimed is:

1. A method for forming a photoresist pattern comprising the steps of:

(a) coating an etching mask layer on an underlying layer;

(b) coating a photoresist film on the etching mask layer;

(c) coating a gas protection film capable of absorbing gas generated from the photoresist film on the photoresist film;

(d) performing a photolithography process on the resulting structure to form a photoresist film pattern;

(e) etching the etching mask layer of step (b) using the photoresist film pattern as an etching mask to form an etching mask pattern; and

(f) forming an underlying layer pattern by an etching process using the etching mask pattern,

whereby said photoresist film generates gas upon exposure to light in the process of step (d) and said gas protecting film absorbs the gas generated from the photoresist film.

2. The method according to claim 1, wherein the etching mask layer of step (a) is formed by coating an i-line photoresist or KrF photoresist.

3. The method according to claim 1, wherein the photoresist film of step (b) is formed by coating a photoresist including silicon and the gas protecting layer is capable of absorbing the silicon gas.

4. The method according to claim 3, wherein the photoresist is one of photoresist for ArF (193nm), VUV (157nm) or EUV (13nm).

5. The method according to claim 1, wherein the gas protection film of step (c) comprises water-soluble polymer material.

6. The method according to claim 5, wherein the water-soluble polymer is selected from the group consisting of poly(methyl methacrylate/acrylic acid), poly(methyl acrylate/acrylic acid), poly(dimethyl acrylate/methyl acrylate), poly(dimethyl acrylate/methyl methacrylate), poly(vinyl pyrrolidone), poly(dimethyl acrylate) and mixture thereof.

7. The method according to claim 7, wherein the light is ArF (193nm), VUV (157nm) or EUV (13nm).

8. The method according to claim 1, wherein the step (c) comprises:

(c-1) spin coating a gas protection composition on the resultant surface of (b); and

(c-2) baking the coated gas protection composition.

9. A method for forming a photoresist pattern comprising:

(a) coating an etching mask layer on an underlying layer;

(b) coating a photoresist film including silicon compound on the etching mask layer;

(c) coating a gas protection composition comprising water-soluble polymer selected from the group consisting of poly(methyl methacrylate/acrylic acid), poly(methyl acrylate/acrylic acid), poly(dimethyl acrylate/methyl acrylate), poly(dimethyl acrylate/methyl methacrylate), poly(vinyl pyrrolidone) and poly(dimethyl acrylate) on the photoresist film;

(d) performing a photolithography process on the resulting structure to form a photoresist film pattern;

(e) etching the etching mask layer of step (b) using the photoresist film pattern as an etching mask to form an etching mask pattern; and

(f) forming an underlying layer pattern by an etching process using the etching mask pattern.

10. A gas protection composition for adsorbing silicon gas comprising:

a water-soluble polymer selected from the group consisting of poly(methyl methacrylate/acrylic acid), poly(methyl acrylate/acrylic acid), poly(dimethyl acrylate/methyl acrylate), poly(dimethyl acrylate/methyl methacrylate), poly(vinyl pyrrolidone), poly(dimethyl acrylate) and mixture thereof.